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it in the power of every individual possessed of standard weights to verify his measures of capacity with the utmost facility.

Description of an improved Hygrometer. By Mr. Thomas Jones. Communicated by Captain Henry Kater, F.R.S. Read June 16, 1825. [*Phil. Trans.* 1826, Part II. p. 53.]

The principle of Mr. Jones's Hygrometer is essentially the same with that of Mr. Daniell's, or rather with that employed by Mr. Dalton to determine the quantity of aqueous vapour present in the air, viz. to ascertain the temperature at which dew is deposited from the atmosphere. It differs from Mr. Daniell's, however, in the frigorific action being applied *immediately* to the bulb of the thermometer employed to measure the temperature.

This bulb is of a considerable size, and of a cylindrical form, slightly flattened, and extended at the end. The stem of the thermometer being twice bent at right angles, this end of the bulb turns upwards. It is made of black glass and is exposed, but the rest of the bulb is covered with muslin. This being moistened with ether, the mercury is cooled, and dew at length settles on the exposed part, at which moment it is read off.

Mr. Jones, after describing this instrument, obviates an objection to its use, drawn from the application of the frigorific process to the lower part of the bulb, while the dew is deposited at the upper. This objection, if valid, might be obviated, by inclining the bulb so as to have its axis horizontal. But repeated trials have satisfied him of there being no occasion for this precaution.

Mr. Jones finally alludes to the use of a similar construction in Vienna.

Observations on the Changes which have taken place in some ancient Alloys of Copper. By John Davy, M.D. F.R.S. In a Letter to Sir Humphry Davy, Bart. P.R.S. Read November 17, 1825. [*Phil. Trans.* 1826, Part II. p. 55.]

Dr. Davy first describes the nature of an incrustation upon an ancient helmet found in a shallow part of the sea, between the citadel of Corfu and the village of Castrades. The surface was of a variegated colour, mottled with spots of green, dirty white, and red. The red and green patches exhibited minute crystals of red oxide of copper, and metallic copper; and were further composed of its green submuriate and carbonate. The dirty white parts consisted chiefly of oxide of tin. These new combinations are only superficially produced; the metal was found bright beneath, and consisted of copper alloyed with 18.5 parts of tin.

An ancient nail from a tomb in Ithaca, and a mirror from a tomb at Samos, in Cephalonia, afforded nearly similar but less distinctly crystalline results. The copper in the mirror was alloyed with 6 per cent. of tin, and a minute portion of arsenic.

The examination of the incrustation upon ancient coins showed it to consist of oxide of tin, and of carbonate and submuriate of tin, and of carbonate and submuriate of copper. It in some cases acquires a dingy hue from the prevalence of black oxide of copper, mixed with a little of its protoxide.

The author could discover no connexion between the perfect state of preservation of ancient coins, and their composition; but he observes that the manner in which the crystalline structure of the incrustation is acquired is a peculiarly interesting question. There being no reason to suspect deposition from solution, "are we not," says the author, "under the necessity of inferring, that the mineralizing process witnessed in its effects, depends on a slow motion and separation of the particles of the original compound? And must we not conclude that this motion is connected with the operation of attractions of different kinds, as chemical affinity, electro-chemical attraction, and attraction of aggregation?" If this conclusion be just, the author remarks that it opens a new field of inquiry, which may help to explain several phenomena in mineralogy and geology.

Additional Proofs of Animal Heat being influenced by the Nerves. By Sir Everard Home, Bart. V.P.R.S. Read November 16, 1825. [*Phil. Trans.* 1826, Part II. p. 60.]

In this communication Sir Everard gives an account of a repetition of his former experiments upon the effect of dividing the nerves that supply the velvet of the deer's horns, and in which some sources of error have been avoided. The general results are the same as those formerly obtained; the temperature of the horn, the nerves of which were divided, was diminished to the amount of 7° ; and, as before, the disparity of temperature gradually decreased until, after the lapse of about twelve days, the temperatures of the two horns were the same. Upon examining the structure of the parts after the animal's death, it was found that the interval between the divided ends of the nerves was filled up by a newly-formed connecting substance, capable of restoring their action.

In further illustration of the effect of the nerves in producing heat, independent of mere circulation of blood, the author mentions a case of aneurism, in which the femoral artery was tied without occasioning any diminution in the temperature of the foot.

The Croonian Lecture. On the Structure of a muscular Fibre from which is derived its Elongation and Contraction. By Sir Everard Home, Bart. V.P.R.S. Read December 15, 1825. [*Phil. Trans.* 1826, Part II. p. 64.]

In this paper, after attending to the striking analogy between the structure of a nervous and of a muscular fibre, as demonstrated by Mr. Bauer's microscopical observations, Sir Everard adverts to an error into which he had fallen, in his former examination of the